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4.2° C. (7.6° F.); in the next twenty-four hours it fell 1.4° (2.5° F.), and then fell 3.2° (5.8° F.), or a fall of 8.3° F. in forty-eight hours. It seems to me that no more positive disproof of Dr. Hann's position could be found than these very observations which have given rise to so much discussion. Here is the temperature higher in the centre of a storm than before and after it, both at base and summit, exactly in accordance with theory, and directly opposed to Dr. Hann's position.

Dr. Hann has tried to fortify his position by stating the fact that in this storm the average temperature was 4° C. below the thirty-years' normal, and this temperature was lower than that in a high, nearly two months later. As I showed in this journal for June 6, 1890, "the temperature in a vertical direction in a storm is not fixed, but may be ten degrees, or even more, lower than the average, and yet be many degrees above that of the surrounding region. That the temperature in an October storm was lower than in a November high area is not in any wise remarkable." This position is exactly the one taken more recently by Professor Ferrel (*Science*, Dec. 19); so that we see that on all accounts Dr. Hann's position is entirely untenable, and his disproof of the condensation theory, if it amounts to any thing, is a direct proof in its favor, as shown by the records.

H. A. HAZEN.

Washington, Jan. 7.

The Practicability of transporting the Negro back to Africa.

A LITTLE more than a year ago there appeared in the columns of *The Open Court* of Chicago some very excellent articles upon the question as to the methods we should adopt in handling our African population in the future. There were two sides taken in the premises,—those in favor of making the attempt to assimilate this mighty host of millions of negroes we now have in our midst; and those in favor of sending him back to the land of his ancestors. In the opinion of the present writer, the most able of all these articles came from the pen of Professor Cope, and in the main we completely coincide with the views that that far-seeing thinker puts forth.

Professor Cope's reasons for returning the African to Africa are most cogent indeed, and are stated in a philosophic and masterly manner. He lifts himself far above the state of the case as seen by the short-sighted party politician, or the sentimental hopes of the idealist or philanthropist, and, calling history and science to his aid, shows most conclusively that we incur a great danger in quietly submitting to the continued presence of this race of people among us. It is not my object here to enlarge upon his ably stated argument, for he has shown with marked precision and strength the dangers of hybridization of the white and black races in this country, and the constantly disturbing element the negro is in our national organization. By far the greatest danger, however, comes from the mixture of the two races; and that such is now going on, one has to but study the population of a city like Washington to appreciate.

It is to be most devoutly hoped that in the very near future the pressing necessity of taking early action in this matter will be fully recognized; and, when such comes to be the case, the practical question will surely arise as to the best ways and means of accomplishing the transfer. Little has been written upon this point as yet, though we all know that the proper exercise of ability, of energy, and the use of sufficient money, will effect it. It seems to me that the first steps that should be taken are those of an organization of an extensive American expedition to Africa, to primarily report upon the best available areas for colonization, taking conditions of climate and for future improvement into consideration. Such an expedition would have many decided advantages; for, in addition to making a well-organized initial move for the removal of the negro to his proper home, it would give America an opportunity to reap the national benefits that flow from such exploration,—credit of a nature that we now stand greatly in need of, as our last African expedition was practically a puerile failure. Finally, it would give scientific employment to several of the huge and expensive battle-ships we are now constructing, and for which there is no other especial employment in these days of peace, beyond an exhibition of power.

The next step should be in the direction of constructing a sufficient number of comfortable and commodious steamers by means of which the transfer could be made; and upon their completion, the necessary national legislation should be promptly enacted that would efficiently result in the removal of every negro in this country to those parts of the African continent selected for them. The settlement for such personal properties as the comparatively few negroes could justly lay claim to in the United States could be easily settled. It would not create a circumstance aside similar financial problems that we have most promptly and satisfactorily solved in former times.

We do not need the negro vote; we do not need his labor; and, least of all, do we need the injection of his lowly blood into our veins. On the other hand, "Darkest Africa" can well stand, and with the greatest benefit, the introduction into her fertile valleys and upon her fair hillsides, of the very material she most requires to inaugurate her development; that is, several millions of the descendants of her people, which, for a century and a half, have enjoyed the tuition of the most highly civilized race upon the face of the globe.

R. W. SHUFELDT.

Takoma, D.C., Jan. 2.

["Letters to Editor" continued on p. 50.]

NOTES AND NEWS.

AN exhibition at Grolier Club, 29 East 32d Street, New York, of books on alchemy and early chemistry belonging to Dr. H. C. Bolton, is announced to close Monday, Jan. 26; open afternoons from two to six o'clock.

—Dr. Don José Nicolás Gutierrez, founder of the Cuban Academy of Medical, Physical, and Natural Sciences at Havana, died Dec. 31, 1890, at the age of ninety. The rector of the university, and Professor Poey of the same, still live,—one at the age of ninety, the other ninety-one.

—Owing to their greatly increased trade in New York, George L. English & Co., mineralogists, have leased rooms at 733 and 735 Broadway (within three doors of their former location), in which they have more space than heretofore in their Philadelphia and New York stores combined. The consolidation of the two stores, and the formal transfer of the business, were made on Jan. 1. Mr. Niven, a member of the firm, started Dec. 13 on another collecting-trip to the South-west and Mexico.

—The question has been asked, "Does the weather of Kansas divide itself into seven-year wet and dry periods?" Another question that has been asked, and it is an important one too, is, "Is the rainfall of Kansas increasing?" And it is the object of a paper by E. C. Murphy, C.E., Kansas University, Lawrence, Kan., to answer these questions as correctly as the rainfall records of the State will permit, in which he concludes from the record of the observations thus far taken, that the law of seven-year wet and dry periods does hold in Kansas, and also that the rainfall is steadily increasing in Kansas.

—The next meeting of the American Branch of the Society for Psychical Research will be held at the Association Hall, corner of Berkeley and Boylston Streets, Boston, Mass., on Tuesday, Jan. 27, at 8 P.M. The following papers will be read: "Report of Some Recent Experiments in Automatic Writing," by T. Barkworth, to be read by the secretary; "Report of Some Sittings with Mrs. Piper in America," by R. Hodgson. No admittance except by ticket. Extra tickets may be obtained by members or associates on application to the secretary, Richard Hodgson, 5 Boylston Place, Boston, Mass.

—Staff-Commander J. G. Boulton, R.N., who has, since the autumn of 1883, been engaged in a hydrographic survey of the Georgian Bay, during the past season completed a large proportion of the work yet remaining to be done, being that part of the east coast from Indian Islands to Moose Deer Point, and including the important harbor and approaches of Parry Sound. The part not yet completed comprises the south-east extremity of the bay, lying south-eastward of a line joining Moose Deer Point and Point Rich, of which the most important portion is Matchedash Bay. Two charts have just been issued by the British Admiralty, covering the work done by Capt. Boulton in 1889. One of these embraces

the coast from Collins Inlet to McCoy Islands, including the harbors of French River, Byng Inlet, and Point au Baril. In consequence of the shoal water, low land, and innumerable islands in this sheet, navigation is very difficult, and the extremely broken character of the coast line shows the immense quantity of work involved in making a thorough survey of this district. The second chart referred to shows St. Joseph's Channel north of St. Joseph Island, and will be of great use to American as well as Canadian shipping. It includes the western limit of Capt. Boulton's work, the west extremity of the sheet connecting with the American Coast Survey charts.

— At the meeting of the French Academy on Dec. 8, as we learn from *Nature* of Jan. 1, 1891, M. Mascart presented a work by Gen. A. de Tillo on the distribution of atmospheric pressure in the Russian Empire and Asia from 1836 to 1885. The work consists of an atlas of 69 charts, and a discussion of the monthly and annual values, as well as of the variability of pressure, and the relations existing between the variations of pressure and those of temperature at 136 stations. The highest pressure quoted is 31.63 inches (reduced to sea-level), in December, 1877, at Barnaoul; and this is stated to be the highest reading on record. But in the *Quarterly Journal of the Royal Meteorological Society* for July, 1887, Mr. C. Harding quoted, on the authority of Professor Loomis, a reading of 31.72 inches on Dec. 16, 1877, at Semipatalinsk. In *Nature*, vol. xxxv. p. 344, Mr. Blanford quoted the lowest reading on record at any land station, viz., 27.12 (reduced to English standards), which occurred on Sept. 22, 1885, on the coast of Orissa. These readings give a difference of 4.6 inches, probably the maximum range of the barometer ever observed at the earth's surface.

— A microscopical study by Herr Schultz, of the skin of toads and salamanders, has yielded some interesting results. As stated in *Nature*, there are two kinds of glands,—mucus and poison glands. The former are numerous over the whole body; while the latter are on the back of body and limbs, and there are groups in the ear-region behind the eye, and in the salamander at the angle of the jaw. The mucus-glands are spherical, have a clear, glassy appearance, and contain mucus-cells and mucus; the poison-glands, which are in regular strips on the salamander, are oval, much larger, and have a dark, granular look, from strongly refractive drops of poison, a good re-agent for which is copper-hæmatoxylin. The poisonous elements are from epithelial cells lining the glands. The mucus-glands are for moistening the skin; and the liquid has no special smell, nor a bitter or acid taste. The poison-glands are, of course, protective; and the corrosive juice is discharged differently in toads and salamanders, on stimulating electrically. In the latter it is spirted out in a fine jet, sometimes more than a foot in length; whereas in the toad, after longer action of the current, it exudes sparingly in drops. The physiological action of the poison has lately been studied by some Frenchmen. There is no reason, according to Herr Schultz, for supposing that the mucus-glands sometimes become poisonous.

— At a meeting of the Biological Club of Columbus, O., Jan. 5, Professor Lazenby gave a report of the twenty-fourth annual meeting of the Ohio State Horticultural Society, recently held at Zanesville, saying that the principal interest seemed to centre in three subjects,—new varieties of fruits; the use of fungicides; and cross-fertilization, especially between the peach and cherry. It was the decision of fruit-growers present that for them the older, standard varieties are still much better than many of those of only recent advent in the horticultural world. For the parasitic fungi, which do such great injury to many of our fruit-trees and vines, it was recommended to spray with a solution of sulphate of copper and ammonia. All the difference in a fruit-crop between success and failure may be seen by comparing those orchards and vineyards which have been sprayed with those which have not. For cross-fertilization it may be said that the experiment of crossing the peach and cherry was successful in eleven instances last spring at the Ohio State University. Mr. W. C. Werner next spoke of the varieties of the beautiful little evergreen, much used for hedges, the arbor-vitæ (*Thuja occidentalis*). Mr. C. P. Sigerfoos described two Indian graves recently opened in a gravel-pit near the western extension of Lane Avenue at

North Columbus. These graves were in a cultivated field situated on a promontory near the Olentangy River at the new bridge just above the college farm. One contained the skeleton of a man about twenty-five years of age, and the other that of a woman of about sixty years. Each had evidently been buried in a sitting posture; and the hand of the man was supported toward the mouth with a mussel-shell near it, as though it had been intended to serve as a drinking-vessel for the entombed individual on his journey to the land of the Great Spirit. The bottom of this grave was at least seven feet beneath the surface of the ground, so the head was covered by about three feet of soil. For about one foot under the skeleton was found disturbed gravel and dirt, and beneath this was yet two or three inches of ashes and cinders. The charcoal, one piece being two and one-half feet long, showed that there had been a fire which was smothered by the material thrown over it. The woman's grave showed no evidences of fire beneath it, although such were found above in the form of cinders mixed with the material with which the grave was filled. No relics whatever were found excepting some pieces of pottery in each grave.

— In a report to the British Foreign Office, recently published, Col. Stewart, the British consul-general at Tabreez, calls attention to the curious system of lakes in that region, situated at a great elevation above the sea-level. According to *Nature* of Jan. 8, these are the lake of Urumia, situated 4,100 feet above the sea, Lake Van, and the Guektcha lake. Lake Van is in Turkish territory, and the Guektcha lake in Russian territory, though both are near the bottom of the Persian province of Azarbaijan, in which is situated the lake of Urumia, the largest and most important. It is 84 miles long and 24 miles broad, and is probably the saltiest piece of water on earth, being much saltier than the Dead Sea. The water contains nearly 22 per cent of salt. Its northern coasts are incrustated with a border of salt glittering white in the sun. It is said that no living thing can survive in it, but a very small species of jelly-fish does exist in its waters. Many streams pour down from the Kurdish Mountains, which border Turkey, and render the country between them and the lake of Urumia very green and fertile. This part of the country looks more like India than Persia, but the climate is severe in winter. The whole country being situated from 4,000 feet to 5,000 feet above ocean-level, the snowfall in winter is great. At night in winter the thermometer falls frequently below zero of Fahrenheit, but in the day-time it rises considerably, generally reaching 28° or 30°, and this with a bright sun over head. Many people are frozen to death on the roads in winter while crossing the various passes. The winter climate may be compared to that of Canada, but the summer approaches that of northern India.

— The wren is generally supposed to be a gentle little bird, yet on occasion it seems capable of displaying any thing but an amiable temper. In the *Selborne Society's* magazine, Mr. Aubrey Edwards gives from his note-book the following account (quoted in *Nature* of Jan. 1) of what he calls "a disgraceful scene" between two male wrens: "April 15, 1889.—I have just been watching two golden-crested wrens fighting. They first attracted my attention by getting up from the ground almost under my feet, and engaging again and falling to the ground. Then rising again, one chased the other into a yew-tree near, where I had a good close view of them as they challenged each other, ruffling their feathers, shaking their bodies, singing and dancing about with crests erected, the sun shining on the orange-colored crests,—such a pretty sight! After they had been talking big at each other for some minutes, the hen arrived on the scene, and a desperate fight ensued, the two cocks falling to the ground in fierce embrace, rolling over each other occasionally, but for the most part lying still on the ground with their claws buried in each other's feathers for about a minute. The hen was close by them on the ground, moving about, and looking very much concerned at the affray. Her pale-yellow crest contrasted notably with the rich orange of the males. After getting up, renewing the combat in a currant-bush, falling again, and struggling on the ground, they rose and had a chase round the yew-trees, the hen following to see the fun, and presently went off and were lost to view."